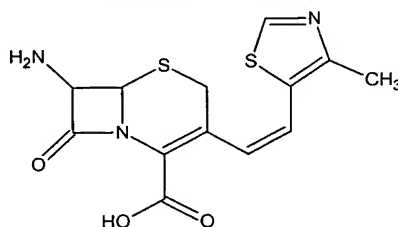
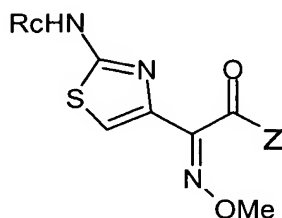


1. (Original) A process for preparation of cefditoren or a pharmaceutically acceptable salt or ester thereof, the process comprising:
- reacting a compound of Formula IX with a compound of Formula X wherein Z is selected from Formulae Xa, Xb, Xc and Xd and R<sub>c</sub> is selected from trityl (triphenylmethyl), acetyl, benzhydryl or acetamidophenyl, R is C<sub>1</sub> to C<sub>7</sub> straight or branched chain alkyl, alkenyl, alkynyl or C<sub>6</sub> to C<sub>10</sub> aryl or aralkyl, R<sub>1</sub> is C<sub>1-6</sub> straight or branched chain alkyl, cycloalkyl, aryl, aralkyl or a heterocycle residue,
  - isolating cefditoren or pharmaceutically acceptable salt thereof from reaction mass, and
  - optionally converting cefditoren or pharmaceutically acceptable salt thereof to a pharmaceutically acceptable ester of cefditoren.

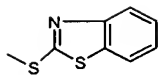


**FORMULA IX**

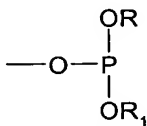


**Formula X**

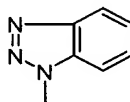
wherein Z is Compound of Formula Xa or Xb or Xc or Xd



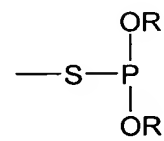
Formula Xa



Formula Xb



Formula Xc



Formula Xd

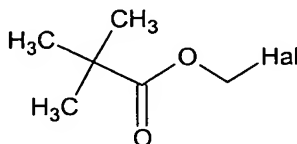
2. (Original) The process according to claim 1, wherein the compound of Formula IX comprises less than 2% of E-isomer.

- 1 3. (Original) The process according to claim 1, wherein the compound of Formula X  
2 has  $Z = Xa$ .
- 1 4. (Original) The process according to claim 3, wherein Formula X is *S*-(1,3-  
2 benzothiazol-2-yl)-(2-amino-1,3-thiazol-4-yl)(methoxyimino)ethanethioate.
- 1 5. (Original) The process according to claim 1, wherein step a) is carried out in  
2 presence of an organic solvent.
- 1 6. (Original) The process according to claim 5, wherein the organic solvent is  
2 selected from the group consisting of chlorinated hydrocarbon such as methylene  
3 chloride, chloroform, ethylene chloride or ethylene bromide; ethers such as  
4 tetrahydrofuran and diethyl ether; ketones such as acetone, methyl isobutyl ketone  
5 and methyl ethyl ketone; alcohols such as methanol, ethanol, propanol, isopropanol  
6 and butanol or mixtures thereof optionally containing water.
- 1 7. (Original) The process according to claim 1, wherein a base is used in step a).
- 1 8. (Original) The process according to claim 7, wherein the base is an inorganic base  
2 or an organic base.
- 1 9. (Original) The process according to claim 8, wherein the inorganic base is selected  
2 from the group consisting of sodium hydroxide, potassium hydroxide, calcium  
3 hydroxide, magnesium hydroxide, aluminium hydroxide, sodium hydride,  
4 potassium hydride, sodium carbonate, potassium carbonate, sodium bicarbonate or  
5 potassium bicarbonate.
- 1 10. (Original) The process according to claim 8, wherein the organic base is selected  
2 from the group consisting of an organic salt or an organic ammonium compound.
- 1 11. (Original) The process according to claim 10, wherein an organic salt is selected  
2 from sodium methoxide, potassium *t*-butoxide or sodium ethoxide.
- 1 12. (Original) The process according to claim 10, wherein an organic ammonium  
2 compound is selected from triethylamine, dicyclohexylamine or diphenylamine.

1 13. (Original) The process according to claim 1, wherein in step b) a salt of cefditoren  
2 is isolated.

1 14. (Original) The process according to claim 13, wherein a sodium or potassium salt  
2 of cefditoren is isolated.

1 15. (Original) The process according to claim 1, wherein salt of cefditoren is reacted  
2 with compound of Formula XI, to get cefditoren pivoxil.



FORMULA XI

5 16. (Original) A crystalline hydrate of cefditoren sodium.

1 17. (Currently Amended) ~~A crystalline dihydrate of~~ The cefditoren sodium according  
2 to claim 16, wherein the cefditoren sodium comprises a dihydrate.

1 18. (Currently Amended) ~~A crystalline~~ The cefditoren sodium according to claim 16,  
2 wherein the cefditoren sodium comprises having about 5.5 to about 7.5% of water  
3 by weight.

1 19. (Original) A crystalline hydrate of cefditoren potassium.

1 20. (Currently Amended) ~~A crystalline dihydrate of~~ The cefditoren potassium  
2 according to claim 19, wherein the cefditoren potassium comprises a dihydrate.

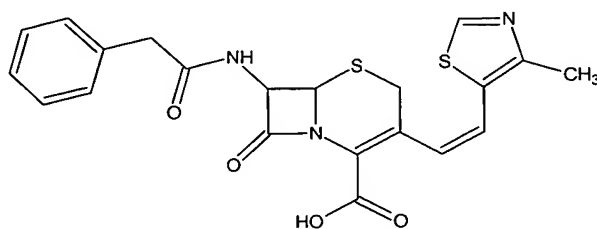
1 21. (Currently Amended) ~~A crystalline~~ The cefditoren potassium according to claim  
2 19, wherein the cefditoren potassium comprises having about 5.5 to 7.5% of water.

1 22. (Original) A process for preparation of cefditoren or a pharmaceutically acceptable  
2 salt or ester thereof comprising:

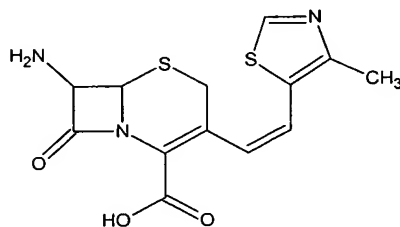
- 3 a) enzymatically deacylating a compound of Formula VIII to get a compound  
4 of Formula IX,
- 5 b) reacting the compound of Formula IX with a compound of Formula X  
6 wherein Z is selected from Formulae Xa, Xb, Xc and Xd, and R<sub>c</sub> is selected

from trityl (triphenylmethyl), acetyl, benzhydryl or acetamidophenyl, R is C<sub>1</sub> to C<sub>7</sub> straight or branched chain alkyl, alkenyl, alkynyl or C<sub>6</sub> to C<sub>10</sub> aryl or aralkyl, R<sub>1</sub> is C<sub>1-6</sub> straight or branched chain alkyl, cycloalkyl, aryl, aralkyl or a heterocycle residue,

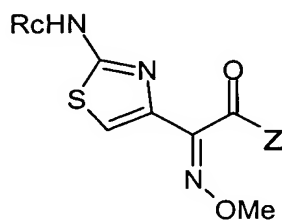
- c) isolating cefditoren or a pharmaceutically acceptable salt thereof from reaction mass,
- d) optionally converting cefditoren or the pharmaceutically acceptable salt thereof to a pharmaceutically acceptable ester of cefditoren.



**FORMULA VIII**

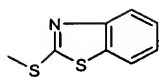


**FORMULA IX**

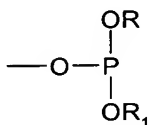


**Formula X**

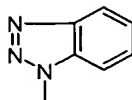
wherein Z is Compound of Formula Xa or Xb or Xc or Xd



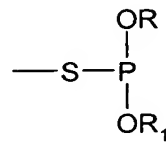
**Formula Xa**



**Formula Xb**



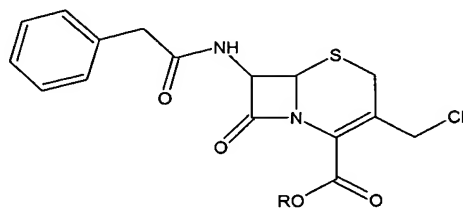
**Formula Xc**



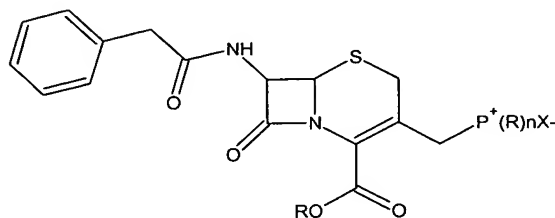
**Formula Xd**

- 1 23. (Original) The process according to claim 22, wherein step a) is carried out in  
2 water, optionally containing an organic solvent.
- 1 24. (Original) The process according to claim 23, wherein the organic solvent can be  
2 water miscible or water immiscible.
- 1 25. (Original) The process according to claim 24, wherein the organic solvent is  
2 selected from the group consisting of methanol, ethanol, n-propanol, n-butanol,  
3 isopropanol, t-butanol, methyl formate, ethyl formate, ethyl acetate, n-butyl  
4 acetate, isopropyl acetate, tetrahydrofuran, 1,4-dioxane, diethyl ether, chloroform,  
5 methylene chloride, ethylene chloride, carbon tetrachloride, acetone, methyl  
6 isobutyl ketone, diisobutyl ketone, ethyl methyl ketone, methyl t-butyl ketone.
- 1 26. (Original) The process according to claim 22, wherein pH is maintained between  
2 about 5 to about 8 during step a).
- 1 27. (Original) The process according to claim 26, wherein the pH is maintained by  
2 using a base.
- 1 28. (Original) The process according to claim 27, wherein the base is selected from the  
2 group consisting of sodium carbonate, sodium bicarbonate, sodium hydroxide,  
3 potassium hydroxide, potassium bicarbonate, potassium carbonate or water soluble  
4 ammonium compounds such as ammonium hydroxide or triethylamine.
- 1 29. (Original) The process according to claim 22, wherein step a) is carried out using  
2 an enzyme belonging to the class of penicillin acylases or penicillin amidases.
- 1 30. (Original) The process according to claim 29, wherein the enzyme is penicillin G  
2 amidase.
- 1 31. (Original) The process according to claim 30, wherein the enzyme is used in  
2 immobilized form.
- 1 32. (Original) A process for the preparation of a compound of Formula IX,  
2 comprising:  
3 a) treating a compound of Formula II with an alkali or alkaline earth metal  
4 halide and a phosphorous-containing compound  $P(YR)_n$ , wherein Y is

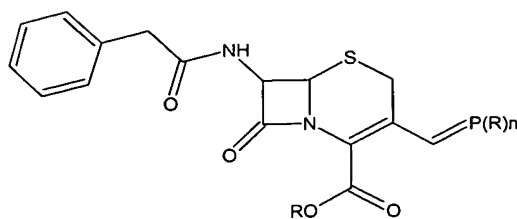
- absent or oxygen or sulphur, n is an integer 2, 3 or 4 and R is selected from C<sub>1</sub> to C<sub>7</sub> straight or branched chain alkyl, alkenyl, alkynyl or C<sub>6</sub> to C<sub>10</sub> aryl or aralkyl, in organic solvent, optionally containing water, at a temperature of about -10 to about 50°C to produce a compound of Formula IV,
- b) converting the compound of Formula IV to an ylide of Formula V by reacting with a base,
- c) reacting the ylide of Formula V with 4-methylthiazole-5-carboxaldehyde of Formula VI in a mixture of organic solvent at a temperature of about -50 to about 10°C to produce a compound of Formula VII,
- d) deprotecting the carboxyl functionality of the compound of Formula VII using phenol or its ether to produce a compound of Formula VIII, and
- e) enzymatically deacylating the compound of Formula VIII to produce a compound of Formula IX.



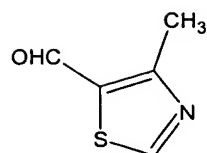
FORMULA II



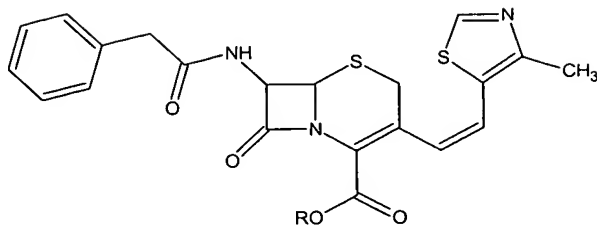
FORMULA IV



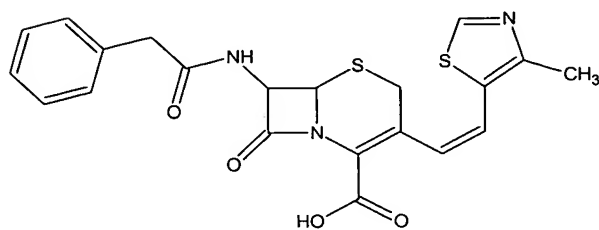
FORMULA V



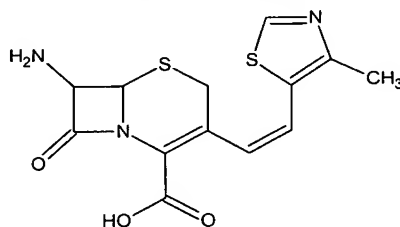
**FORMULA VI**



**FORMULA VII**



**FORMULA VIII**



**FORMULA IX**

- 1 33. (Original) The process according to claim 32, wherein the process is carried out  
2 without isolating any intermediate.
- 1 34. (Original) A process for preparation of cefditoren or pharmaceutically acceptable  
2 salt or ester thereof comprising:
  - 3 a) converting a compound of Formula II to a compound of Formula IX,  
4 through intermediates IV, V, VII and VIII with a proviso that the reaction  
5 sequence is carried out without isolating any intermediate,
  - 6 b) reacting the compound of Formula IX with a compound of Formula X  
7 wherein Z is selected from Xa, Xb, Xc and Xd, and R<sub>c</sub> is selected from  
8 Formulae Xa, Xb, Xc and Xd and R<sub>c</sub> is selected from trityl

- 9 (triphenylmethyl), acetyl, benzhydryl or acetamidophenyl, R is C<sub>1</sub> to C<sub>7</sub>  
10 straight or branched chain alkyl, alkenyl, alkynyl or C<sub>6</sub> to C<sub>10</sub> aryl or  
11 aralkyl, R<sub>1</sub> is C<sub>1-6</sub> straight or branched chain alkyl, cycloalkyl, aryl, aralkyl  
12 or a heterocycle residue,
- 13 c) isolating cefditoren or a pharmaceutically acceptable salt thereof from  
14 reaction mass, and
- 15 d) optionally converting cefditoren or a pharmaceutically acceptable salt  
16 thereof to a pharmaceutically acceptable ester of cefditoren.
- 1 35. (Original) Z-isomer of cefditoren pivoxil having less than 2% of corresponding E-  
2 isomer.
- 1 36. (Original) Z-isomer of cefditoren pivoxil having less than 2% of corresponding E-  
2 isomer, wherein the Z-isomer is isolated from reaction mass without any  
3 purification.
- 1 37. (Currently Amended) The Z-isomer of 7-ATCA according to claim 36 having less  
2 than 1% of the corresponding E-isomer, wherein the Z-isomer is isolated from the  
3 reaction mass without any purification.
- 1 38. (Original) Use of the Z-isomer of 7-ATCA according to claim 37 in preparation of  
2 cefditoren or pharmaceutically acceptable salt or ester thereof.